

Effect of Lithium Carbonate on Periodontium: A Case Report

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Abstract

Chronic mental illness causes long term side effects not only systemically but orally as well. Several studies are available on the oral reactions caused by anxiolytics, hypnotics and calcium channel blockers. However there is still less known facts on the long term use of lithium carbonate on the periodontium. The purpose of this article is to make the general practitioner and the dentist aware of the long duration side effects of anti-depressants over oral tissues mainly lithium when taken in a dose of 900 mg for 8 years and above.

Keywords: Lithium Carbonate; Periodontium, Antidepressants

Introduction

Psychotropic drugs are those that act on the central nervous system (CNS) producing alterations in behavior, mood and cognition, and that may lead to dependence. The use of psychotropic has tremendously increased over decades due to more incidence rate.

In a study by [1] it was found that psychotropic drugs when taken for longer duration by patients have negative impact on their behaviors' thereby resulting in poor oral hygiene maintenance. Several studies have drawn conclusion that long duration of psychotropic drugs causes reduced salivary flow, pasty/ thick saliva thereby hampering oral hygiene maintenance [2-4]. Hyposalivation in rats and acinar hypertrophy in parotid glands was observed by Zacliffevis., *et al.* 2009 [5]. The underlying case-report deals with the adverse effect of lithium on oral tissues thereby leading to significant periodontal and tooth loss.

Case-Report

A 38 yr old female patient came to the department of dentistry of Saraswathi Institute of Medical Sciences; with the chief complaint of chipping of front upper and lower teeth with discoloration since 4 yrs. A detailed history of the patient was taken which revealed anxiety, mood swings, anger, irritability and the use of lithium carbonate over 8 yrs. No, significant family history was found. Patient was also referred to the department of psychiatry for the alteration in drug. On dental examination it was found that the upper anteriors were chipped and there was decalcification of enamel. 41 was found missing with pulpal involvement of 32. There was inflammation of marginal gingiva and interdental papilla involving attached gingiva followed with Grade II mobility in lower anteriors (Figure 1).

Figure 1

Treatment

The treatment plan involved oral prophylaxis with root canal treatment of 11, 12, 21, 22, 32 with extraction of 31 followed with crown placement and removable prosthesis and replacing lithium with some other mood stabilizer.

Discussion

Antidepressants and mood stabilizers are medications prescribed to patients of all ages [6,7], for the treatment of several psychiatric and bipolar disorders. In addition, medical conditions, such as rheumatoid arthritis, dietary disorders, fibromyalgia, migraine, trigeminal neuralgia, pre-menstrual tension the use of antidepressants in various doses and forms have been observed [8].

Antidepressant drugs work on the principle of monoamine-oxidase inhibitors (MAOIs). MAO is the enzyme responsible for the degradation of various neurotransmitters, including adrenalin, serotonin, noradrenalin and dopamine. In a study by [9] it was observed that MAO inhibition alleviates depression, allowing serotonin and noradrenalin to accumulate at the synaptic junction, in the storage locations, in the CNS and the independent sympathetic system.

Lithium is mainly administered in bipolar disorders as it alleviates serotonin levels thus aiding in treatment [10]. However its long term administration causes reduced salivary flow resulting in more calculus formation, dental caries, mucosal dryness and dysphagia. An increase in incidence of rampant cervical caries is ob-

served in several patients not only because of the anticholinergic effects of lithium, but also as sweeteners and candies is provided to increase salivary flow. Several other complications, including xerostomia, sialoadenitis, gingivitis, dysgeusia, glossitis, tongue edema, discoloration and stomatitis, are other symptoms associated with reduced salivary flow [11].

Lichenoid stomatitis is one of the common complications observed as a result of adverse reactions to lithium carbonate has been reported as an adverse reaction to lithium carbonate and is thought to represent a response to alterations in immune regulation induced by the lithium therapy.

In another study it was observed that antidepressant medication raises the quantity of disease for persons already at risk. Rindal, *et al.* (2005) [12].

Long term use of lithium is associated with hypothyroidism which can lead to dental problems like altered tooth morphology, poor periodontal health, delayed wound healing etc.

Conclusion

Xerostomia is the main oral side effect associated with the various classes of drugs, particularly those used continuously. It is important to emphasize the dentists' role as regards patients that make use of medications, mainly for treating chronic diseases. It is their obligation to keep a detailed and updated medical history of their patients, in order to be alert to problems related to medication, and the impact of this on the diagnosis and treatment plan, as well as to prepare the most adequate and effective preventive programs possible.

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